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Claims

1-8 Canceled

9. (New) A method for monitoring signal processing units for sensors, the method comprising:
- detecting at least one individual process control quantitie or process measured values;
- evaluating redundant processing of sensor data in two identical signal processing units (43, 31, 46 and 44, 32, 45);
- checking for plausibility, independently and separately from one another, by at least two processing devices (43, 44) in two evaluation devices (31, 32); and
- transmitting the sensor data between one processing device (43, 44) and one evaluation device (31, 32) through separate signal lines (60, 61).
10. (New) A method according to claim 9, wherein the sensor data that is separately evaluated and checked for plausibility in every evaluation device (31, 32) is exchanged by way of an interface between the evaluation devices (31, 32).
11. (New) A method according to claim 9, wherein sensor data and the condition information of a specific other evaluation unit that have been evaluated and checked for plausibility are sent to a control device of a vehicle by each evaluation device (31, 32), independently of the other one.
12. (New) A method according to claim 11, wherein the sensor data and condition information of the other evaluation unit (31, 32), which have been evaluated and checked for plausibility, are transmitted to the control device of the vehicle by way of internal separate signal lines (49, 50) by way of one data bus each (47).

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13. (New) A device for monitoring signal processing units for sensors, which determine the individual process control quantities or process measured values of a process, the device comprising:
- two or more identical signal processing units (43, 31, 46; 44, 32, 45) for redundant processing of data; and
- two or more processing devices (43, 44) and two evaluation devices (31, 32), in which sensor data is evaluated and checked for plausibility independently of and separately from one another, wherein each processing device (43, 44) is connected with a specific evaluation device (31, 32) by way of separate signal lines (60, 62), and the sensor data is transmitted between the one processing device (43, 44) and the specific evaluation device (31, 32) by way of the separate signal line (60, 61).
14. (New) A device according to claim 13, wherein the sensor data, which is separately evaluated and checked for plausibility in every evaluation device (31, 32), is exchanged by way of an interface between the evaluation devices (31, 32).
15. (New) A device according to claim 13, wherein each evaluation device (31, 32), independently of the others, sends the sensor data and the condition information of the other evaluation unit, which are evaluated and checked for plausibility, to a vehicle control device.
16. (New) A device according to claim 13, wherein each evaluation unit (31, 32) is connected with a data bus (45, 46) by way of an internal separate signal line (71, 72), and the sensor data and condition information of the specific other evaluation unit (31, 32) that have been evaluated and checked for plausibility are transmitted to the vehicle control device by way of the specific data bus (45, 46).